No. 7700082

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

North American Plant Breeders

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS REQUIRED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

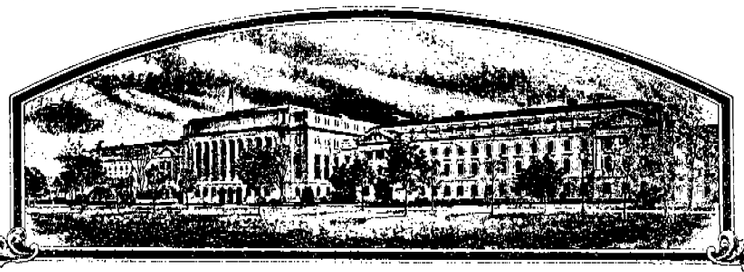
'Delta Queen'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 13th *day of* September *in the year of our Lord one thousand nine hundred and* seventy-nine.

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture



No. 7700082

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Coker's Pedigreed Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC [illegible] OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR [illegible]TING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY [illegible]HEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. [illegible]TED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS [illegible]CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS [illegible]E OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Delta Queen'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 13th day of September in the year of our Lord one thousand nine hundred and seventy-nine

PLANT VARIETY PROTECTION OFFICE · U.S. DEPARTMENT OF AGRICULTURE

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
Coker 75-24	Delta Queen	PV NUMBER 7700082
2. KIND NAME: Wheat	3. GENUS AND SPECIES NAME: Triticum aestivum, L (7/31/79)	FILING DATE 7-5-77 / TIME 4:10 A.M. (P.M.)
4. FAMILY NAME (BOTANICAL): Gramineae (6/22/79) ~~Triticum Aestivum L.~~	5. DATE OF DETERMINATION: October 1976	FEE RECEIVED $ 500.00 $ 250.00 / DATE 7-5-77 8-14-79
6. NAME OF APPLICANT(S): Coker's Pedigreed Seed Co.	7. ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*): P.O. Box 340 , Hartsville, S.C. 29550	8. TELEPHONE AREA CODE AND NUMBER: (803) 332-7532

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (*Corporation, partnership, association, etc.*)	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	South Carolina	July 12, 1918

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

Howard F. Harrison
Coker's Pegigreed Seed Company, P.O. Box 340, Hartsville, S.C. 29550

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [X] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?
[X] YES [ ] NO	[X] FOUNDATION [X] REGISTERED [X] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

April 11, 1977
(DATE)

Howard F. Harrison
(SIGNATURE OF APPLICANT)

(Revised) April 10, 1979
(DATE)

(SIGNATURE OF APPLICANT)

FORM GR-470 (1-78)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

TRANSFER OF OWNERSHIP

A PROTECTED WHEAT VARIETY

DELTA QUEEN

Plant Variety Protection Certificate No. 7700082

In consideration of North American Plant Breeders, 5201 Johnson Drive, Mission, Kansas 86205, entering into a contractual agreement dated July 11, 1978 with Coker's Pedigreed Seed Company, Hartsville, South Carolina, Coker's Pedigreed Seed Company does hereby convey to North American Plant Breeders, free from all encumbrances, ownership of Delta Queen protected wheat variety, Certificate No. 7700082 dated September 13, 1979.

IN WITNESS AND NOTARIZED HEREOF this 4th day of February, 1980.

WITNESS

Michael Lindsey

Joyce Le Long

COKER'S PEDIGREED SEED COMPANY

By: Harry Coker, Jr.

Sworn and subscribed to before me this 4 day of February 1980.

Allan E. Brock

Notary Public for South Carolina

My Commission Expires December 1989.

EXHIBIT A

Origin and Breeding History of the Variety

1967-68	Cross: Atr./Ck. 67-14
1968	Growth Chamber F1 Bulk
1968-69	Spaced F2 Plants
1969-70	Spaced F3 Plants
1970-71	Plant Rows F4
1971-72	Headrows F5
1972-73	Headrows F6
1973-74	Single F6 Headrow to Replicated Yield Test
1974-75	Coker 75-24 increase and yield tests
1975-76	Entry in Uniform Southern Soft Wheat Nursery
1976-77	" " " " " " "

Pure line selection was based on plant type, reaction to indigenous races of leaf rust and powdery mildew and maturity date. Genetic makeup was stabilized in the F6 generation.

Observation of at least 100 headrows during 1976 and 1977 indicate uniformity of type.

Supporting data is included in reports of the Uniform Southern Soft Red Winter Wheat Nursery for 1976 and 1977, copies of which are inclosed.

This variety seems to have 0.50-0.75% off types with some 4"-10" taller than Delta Queen and a few bronze chaffed, some with stem anthocyanin.

EXHIBIT B

Data Indicative of Novelty

DELTA QUEEN WHEAT

Delta Queen most closely resembles Arthur 71 except(1) it is more nearly intermediate in growth habit, (2) it is susceptible to Hessian Fly and (3) has shown a lower average mildew susceptibility and (4) heads about three days earlier.

EXHIBIT D

Additional Description of the Variety

DELTA QUEEN WHEAT

'Delta Queen' wheat is a soft red winter variety developed by Coker's Pedigreed Seed Company from the cross, Arthur x Coker 67-14. It has been tested under the experimental number, Coker 75-24

Winter growth habit is semi-decumbent. Average date at maturity is 3 days earlier than Arthur 71. Plant height is approximately the same as Arthur 71. Average yields from 18 stations in 1976 was about 9 bushels greater than Arthur 71. Test weight was about 1½ lbs. less. Leaf rust reaction averaged 13 compared to 11 for Arthur 71, while powdery mildew averaged about 0.8 compared to 25.0 for Arthur 71.

Plant color at booting is medium green approximating RHS color chart 147A. Upper leaves are approximately 12mm wide and 24cm long. Auricles present, hairy, usually with faint purple pigmentation. Flag leaf is recurved or drooping at booting stage. Medium waxy bloom present. Coleoptiles are white.

Spikes are strap-shaped, apically awnletted, with approximately 11 spikelets per side. Glumes are white, glabrous, midwide and long.

Kernels are red, ovate, with midwide, middeep, crease, rounded cheek's. Brush is midsized, midlong, without collar.

Delta Queen has been tested since 1973 in South Carolina in tests of at least 4 replications each of plots 4' x 12'. It was tested in 1976 at 18 locations across the Southern area as an entry in the Uniform Southern Soft Wheat Nursery.

APPLICATION NO. 7700082

VARIETY NAME Delta Queen -Wheat

Test Results Based on the American Association of Cereal Chemists Approved Method (AACC)

1. Straight dough development time ratio:

Farino graph _____

Dough-Mixer _____

2.

Baking Ingredients	Arrival time--minutes	Peak time	Stability--minutes	Curve center height B.U.	Height at end B.U.
Yeast					
No rest					
4 hr. rest					

3. Protein percentage 12.3

See data table 10 pages 31-35 Quality Report of Uniform Southern Soft Red Winter Wheat Nursery (enclosed)

Entries NY 5517-24RO-14, NY 6423-48, NY 61176-19 and NY 6298-25 did not mill as readily as others, as demonstrated by their high sizing flour content and low yield values and in the number of reduction passes required to recover flour in milling. Some of these milling difficulties were reflected in the high flour ash contents. These entries scored well in baking quality, with NY 61176-19 classified with the "A" group in this regard. Ticonderoga resembled the other entries in this group in many respects.

Uniform Southern Soft Red Winter Wheat Nursery Series

In the preparation of varietal composites of entries in this series which numbered 22 (11 present for the first time), grain in indicated quantities from the following locations were blended: Fayetteville AR, 400 g; Jay FL, 400 g; Quincy FL, 400 g; Athens GA, 400 g; Tifton GA, 500 g; Plains GA, 700 g; Laurinburg NC, 700 g; Clemson SC, 600 g; and Warsaw VA, 400 g; for a total of 4900 g. As with entries of the other two Uniform Nursery series, millings were made to obtain both straight-grade and patent flours, the former evaluated by baking sugar-snap cookies and the latter by baking to high-ratio white layer cakes.

Table 10 presents the wheat, milling, and flour analytical, physico-chemical and baking data, together with millability scores and milling, baking and combined quality scores. As with data tables for other nurseries, the entries were tabulated in order of combined quality score. The reader is referred to discussion under the Uniform Eastern Soft Red Nursery regarding changes made in the testing and evaluation of entries in this series.

As may be noted in Table 10, fully 13 entries scored higher than the Arthur 71 standard in milling quality. This is attributed to the generally higher flour yields, low flour ash, low sizing flour content (indicating greater ease of separation of endosperm and bran) and the smaller number of reduction passes required to obtain flour than the standard. All of these factors are components of millability score, a measure of ease of recovery for low ash flour in high yield, and a major contributor to milling quality score. However, none of the other 21 lines were the equal of Arthur 71 in baking quality. Such being the case, all ranked lower than the standard in combined quality score.

Generally speaking, the rankings of entries conformed to their cookie diameters and micro AWRC values, and to some extent to cake volumes, although a number of exceptions may be found in the last comparison. The three McNair entries baked large cookies and cakes and were low in AWRC (except for McNair 3001). Coker 76-35 baked the largest cookies of all entries but its cake volume was subnormal. In spite of the latter shortcoming the entry ranked well in baking quality.

Table 10. Wheat, milling, and flour analytical, physicochemical, and baking data, millability scores, and milling, baking and combined quality scores for entries of the Uniform Southern Soft Red Winter Wheat Nursery, 1977 crop, arranged in order of decreasing combined quality score.

LAB NO	ENTRY	MILLING QUALITY SCORE	BAKING QUALITY SCORE	COMBINED QUALITY SCORE	WHEAT MOIS. PCT.	WHEAT TEST WT. LB.	WHEAT PROT. PCT.	WHEAT ASH PCT.	WHEAT PART. SIZE INDEX PCT.	WHEAT SIZING FLOUR CONT. PCT.	RED. PASS.	BREAK FLOUR YIELD PCT.	FLOUR YIELD PCT.	MILLAB. SCORE
UNIF	SOUTHERN SOFT RED WURS.													
77365	ARTHUR 71	100.0 A	100.0 A	100.0 A	11.5	61.5	13.1	1.52	52.3	13.6	11.	28.3	75.1	94.5
77372	COKER 76-35	117.1 A	98.1 B	98.1 B	11.6	62.0	11.8	1.46	51.8	9.7	10.	30.3	77.2	121.5
77376	MCNAIR 3069	114.4 A	96.5 B	96.5 B	11.7	58.20	12.6	1.42	52.8	10.7	11	32.5	76.3	114.7
77363	VA 68-22-7	104.7 A	96.5 B	96.5 B	11.5	59.8*	12.6	1.51	52.5	12.2	11.	34.4	75.4	100.6
77367	ARK 38-1	110.1 A	94.7 C	94.7 C	11.6	59.60	12.1	1.41	48.10	11.0	11.	29.8	76.7	108.1
77376	NC 74-36	115.6 A	93.2 C	93.2 C	11.7	58.70	12.4	1.41	55.4	10.2	10.	34.8	76.6	126.0
77357	MCNAIR 3003	103.8 A	93.2 C	93.2 C	11.5	58.90	12.8	1.49	55.9	12.2	12.	32.7	75.6	103.9
77358	MCNAIR 3001	94.5 C	93.2 C	93.2 C	11.8	58.90	11.5	1.41	53.3	13.9	12	36.4	74.20	86.1
77368	OA 56A1-4-1	106.0 A	93.1 C	93.1 C	11.7	60.5*	12.9	1.49	50.9	12.2	11.	29.4	75.5	102.9
77361	COKER 74-27	102.3 A	92.9 C	92.9 C	11.7	61.3	12.6	1.47	48.7*	11.6	11.	29.8	75.7	98.0
77371	COKER 75-26	109.0 A	92.4 C	92.4 C	11.8	62.8	12.3	1.43	46.20	13.2	10.	29.3	74.6*	105.6
77366	OASIS	96.2 B	89.7 D	89.7 D	11.6	61.0	13.1	1.57	52.3	13.3	11.	28.3	75.7	90.1
77375	NC 74-31	111.6 A	89.5 D	89.5 D	11.6	58.80	11.9	1.41	51.3	10.5	11.	32.9	76.9	108.8
77373	TIFTON 76-864	96.5 B	87.5 D	87.5 D	11.5	59.20	12.6	1.56	45.10	12.9	11.	32.4	75.2	93.3
77359	VA 72-54-14	110.6 A	86.7 D	86.7 D	11.6	58.90	12.5	1.40	47.70	11.7	11.	28.9	76.2	110.0
77374	NC 74-6	112.7 A	84.8 E	84.8 E	11.5	57.90	12.1	1.41	51.7	10.3	11.	30.5	76.5	110.8
77364	HOLLEY	89.3 D	84.5 E	84.5 E	11.8	61.1	13.0	1.56	49.5*	14.4*	12.	29.7	74.20	82.2
77360	COKER 75-24	97.5 B	83.9 E	83.9 E	11.9	60.8	12.3	1.44	41.60	11.9	11.	27.10	75.3	94.4
77369	COKER 76-22	112.0 A	82.7 E	82.7 E	11.8	58.70	12.1	1.47	53.3	12.1	10.	34.2	74.8	109.1
77370	COKER 75-27	98.9 B	81.9 F	81.9 F	11.6	61.2	13.3	1.51	46.70	12.9	10	29.4	74.5*	95.7
77362	LA 754	92.9 C	81.9 E	81.9 E	11.8	59.20	12.9	1.42	49.1*	13.0	12.	30.6	74.10	87.8
77377	LA 724	99.8 B	73.7 E	73.7 F	11.6	59.9*	13.2	1.53	45.70	12.5	11.	28.2	75.3	97.8

Table 10 (contd.) Wheat, milling, and flour analytical, physicochemical, and baking data millability scores, and milling, baking and combined quality scores for entries of the Uniform Southern Soft Red Winter Wheat Nursery, 1977 crop, arranged in order of decreasing combined quality score.

	STRAIGHT-GRADE FLOUR								CAKE PATENT FLOUR							
LAB NO	MOIS. PCT.	ASH PCT.	PROT. PCT.	VISC. AS IS MACM.	VISC. ADJ. MACM.	MICRO AWRC PCT.	COOKIE DIAM CM.	OP GRAIN	ASH PCT.	PROT. PCT.	INIT. PH	FINAL PH	CHLORINE RESPONSE PH/ML/G	OPT. LIQUID LEVEL ML.	CAKE VOLUME ML.	INTER-NAL SCORE
77365	13.5	.39	11.7	150.	91.	47.4	17.7	7.	.28	10.7	5.82	4.77	2.80	130.	1085.	80.
77372	13.7	.40	10.7	122.	97.	48.5*	18.0	7.	.31*	9.9	5.83	4.79	2.21	130.	1046. *	78.
77354	13.1	.37	11.1	160.	113. *	48.0	17.6	6.	.27	10.3	5.76	4.82	2.54	130.	1100.	83.
77363	13.3	.39	11.5	108.	66.	47.3	17.8	6.	.26	10.5	5.68	4.79	2.85	130.	1113.	77.
77367	13.7	.40	10.7	101.	80.	48.4	17.6	5.	.29	9.7	5.77	4.79	2.63	130.	1073.	80.
77376	13.7	.36	10.9	131.	97.	47.9	17.6	7.	.27	10.0	5.71	4.74	2.72	125.	1117.	75.
77357	13.3	.38	11.4	161.	105. *	49.2	17.8	6.	.26	10.5	5.73	4.85	2.79	130.	1101	74
77358	13.1	.37	10.0	95.	93.	53.7Q	17.9	6.	.27	9.0	5.68	4.82	2.87	140.	1100.	82.
77368	13.9	.38	11.8	104.	61.	48.2	17.9	6.	.28	10.7	5.72	4.82	2.21	130.	1067.	81.
77361	13.7	.41	11.4	127.	85.	49.5*	17.7	6.	.31*	10.5	5.84	4.77	2.42	140.	1041. *	83.
77371	13.7	.37	11.0	142.	104. *	48.7*	17.7	6.	.26	9.9	5.82	4.78	2.76	140.	1076.	79.
77366	13.7	.43*	11.8	143.	87.	48.7*	17.5	5.	.29	10.8	5.77	4.78	2.57	130.	1087.	80.
77375	13.7	.40	10.4	116.	102.	48.2	17.4*	7.	.31*	9.5	5.66	4.71	2.49	130.	1085.	77.
77373	13.7	.41	11.6	141.	90.	48.5*	17.5	6.	.30	10.7	5.81	4.83	2.50	130.	1082.	76.
77359	13.4	.38	11.1	105.	75.	48.9*	17.7	6.	.26	10.0	5.73	4.85	2.45	140.	1074.	79.
77374	13.9	.39	10.8	113.	89.	49.4*	17.4*	6.	.29	9.6	5.66	4.84	2.67	130.	1067.	75.
77364	13.5	.38	11.5	145.	92.	49.8Q	17.5	4. *	.26	10.6	5.70	4.83	2.67	130.	1058.	76.
77360	14.2	.41	11.2	135.	94.	50.7Q	17.5	6.	.33*	10.5	5.87	4.85	2.39	140.	1038. *	79.
77369	13.1	.37	10.5	86.	71.	48.5*	17.0Q	9.	.27	9.7	5.80	4.82	3.18	125.	1093.	79.
77370	13.7	.41	12.2	119.	65.	49.3*	17.4*	7.	.29	11.0	5.83	4.81	2.43	130.	1069.	82.
77362	13.6	.37	11.8	165.	99.	48.9*	17.2Q	6.	.28	10.8	5.72	4.83	2.63	130.	1091.	75.
77377	13.8	.40	12.2	195.	107. *	51.9Q	17.1Q	6.	.29	11.1	5.73	4.74	2.32	130.	1069.	75.

Among entries in the "C" category and higher (scores of 90 and higher) are a number which have ranked well in past years (Table 11). These included the two McNair entries and Coker 74-27. It would thus appear that at least for the present one may say that entries in this group can be considered to have satisfactory soft wheat quality.

Entries ranked below the 90 score appeared for the most part to show baking quality shortcomings compared to Arthur 71. These were manifested mostly in the significantly high AWRC values (note notations on AWRC data in Table 10), small cookie spreads, and small cake volumes.

Advanced Nursery Series

Florida

Among the 75 entries from Florida were a number of cultivars, from which Blueboy was selected as one representing a good milling and baking quality level for evaluation purposes (Table 12).

Milling Quality. Seven entries scored higher than Blueboy in milling quality. Of them 4 were Coker entries, namely 76-35, 76-22, 77-30, and 747. These were characterized by good test weight and flour yield, and soft kernel texture. The remaining lines ranged from 99.4 points to 63.2, and were characterized by low particle size index (harder than standard kernel texture) and low flour yield. Flour yield has been found in independent tests to be highly significantly correlated with a wheat parameter we call "millability," which is related to the ease of separation of flour and bran in larger-scale millings.

Many entries were also high in protein content, much higher than the 12.8% found for the Blueboy standard. Test weight appeared to be uniformly high.

Baking Quality. In spite of the questionably high AWRC values for entries (compared to that of the standard), many entries baked cookies with diameters comparable to Blueboy. A significantly high correlation has been established in the past for AWRC vs. cookie diameter, thus the unusual data here may indicate that either the AWRC or cookie diameter for Blueboy may be unusually low.

However, a number of entries received baking quality scores indicative of good quality. Most of these (which scored more than 100 points) were those with AWRC values within experimental error of that of the standard (no notation) or only a LSD off (with asterisk). Entries with baking quality scores exceeding the standard included Coker 76-35, 76-22, 77-30, 77-17, 77-22, 76-25, 75-27, 77-23, 77-13, 75-26, 77-12, McNair 3069, 3001, Arkansas 38-1, Pioneer 95-2-32-107, 128-9-3-9, 128-9-3,

Table 11. Rankings of entries of the Uniform Southern Soft Red Winter Wheat Nursery for 1977, 1976, 1975 and 1974.

Lab. No.	Entry	1977	1976	1975	1974
77365	Arthur 71	1 A	13	12	14
372	Coker 76-35	2 B			
356	McNair 3069	3 B	2		
363	Va 68-22-7	4 B	9	3	
367	Ark 38-1	5 C			
376	NC 74-36	6 C			
357	McNair 3003	7 C	1	2	
358	McNair 3001	8 C	3	7-	
368	Ga 56A1-4-1	9 C			
361	Coker 74-27	10 C	8	1	
371	Coker 75-26	11 C			
366	Oasis	12 D	14	16-	9
375	NC 74-31	13 D			
373	Tifton 76-864	14 D			
359	Va 72-54-14	15 D	6-	5	
374	NC 74-6	16 E			
364	Holley	17 E	12	20	10
360	Coker 75-24	18 E	15		
369	Coker 76-22	19 E			
370	Coker 75-27	20 E			
362	LA 754	21 E	10		
377	LA 724	22 F			

Table 16 . Micro-quality analysis - Tifton, Ga. wheats, Soft Wheat Quality Laboratory, Wooster, Ohio - August 1976.

Entry	Moisture	Protein As Is	Protein 14%	Particle Size Index	AWRC**	Classification
La. 754	10.7	13.99	13.5*	22.3	63.2	B
Coker 75-6	10.5	13.70	13.2*	24.9	66.1*	E
Coker 75-20	10.6	14.85	14.3*	22.2	63.5	B
Coker 75-24	10.2	15.50	14.8*	22.2	72.9*	E
Coker 75-29	10.0	13.90	13.3*	21.3	62.6	B
Coker 74-27	10.3	12.28	11.8	28.2	63.8*	D
Coker 74-20	10.0	13.72	13.1*	32.7	63.9*	E
Holley* Standard	9.9	13.15	12.6	22.7	62.0	A
Punks W-504	9.8	14.55	13.9*	33.5	66.8*	E
FLX63-104-423	9.5	16.65	15.8*	20.3*	63.4	E
FLX62-65-629	9.4	17.00	16.1*	21.0	69.3*	E
McNair 3001	9.6	12.45	11.8	36.3	63.1	A
McNair 3069	9.8	13.20	12.6	23.6	58.6	A
McNair 3003	9.9	14.09	13.4*	26.8	58.5	B
Va. 72-54-14	10.0	11.81	11.3	20.7*	60.5	C
Va. 68-22-7	9.6	15.90	15.1*	33.2	64.9*	E
Arthur 71	9.5	15.65	14.9*	30.0	69.1*	E
Oasis	9.8	17.16	16.4*	23.8	67.1*	E
Ga. 1123	9.6	14.50	13.8*	19.5*	65.5*	F
McNair 1813	9.7	15.18	14.5*	25.0	62.1	B
Doublecrop	10.2	12.70	12.2	23.5	63.9*	D

Cooperator - W. T. Yamazaki

Classification Guide

Test	(LSD .05)	Guideline Value	Limit Value
Wheat protein	0.5	12.5	13.0
Particle size index	0.5	22.7	20.9
**Alkaline water retention capacity	1.8	62.0	63 8

If a datum is at the limit value or exceeds it (in the wrong direction), a notation is appended to the datum. The classification of the entry is based on the notation schedule below:

Class A - no notation
Class B - high protein only
Class C - low particle size index only
Class D - high AWRC only
Class E - 2 stars
Class F - 3 stars

BILL OF SALE AND ASSIGNMENT

KNOW ALL MEN BY THESE PRESENTS that AGRIPRO BIOSCIENCES INC., a Delaware corporation (hereinafter referred to as "Seller"), pursuant to that certain Asset Purchase Agreement of even date herewith by and between Seller and AGR ACQUISITION CORPORATION, a Delaware corporation (hereinafter referred to as "Buyer") and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, bargain, sell, assign, convey and deliver unto Buyer, all of Seller's right, title and interest in and to the plant varieties owned/registered by Seller and more particularly set forth on Exhibit A attached hereto for which PVP Certificates have been issued by or may be pending before the U. S. Department of Agriculture.

TO HAVE AND TO HOLD UNTO PURCHASER, its successors and assigns forever.

IN WITNESS WHEREOF, Seller has executed this Bill of Sale and Assignment as of the 30th day of June, 1994.

AGRIPRO BIOSCIENCES INC.

BY: W. A. Zama

Title: Pres. dent

STATE OF KANSAS, COUNTY OF JOHNSON

Before me, the undersigned, a Notary Public of the State and County aforesaid, personally appeared W. A. ZAMA with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence) and who, upon oath, acknowledged himself to be the PRESIDENT of Agripro Biosciences Inc., the within named bargainor, a corporation, and that he as such PRESIDENT, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself as PRESIDENT.

WITNESS my hand and Notarial Seal at office the day and year above written.

Alma M. Weaver
Notary Public

My Commission Expires:

June 22, 1998

ALMA M. WEAVER
NOTARY PUBLIC
STATE OF KANSAS
My Appt. Exp. June 22, 1998

State of Delaware

Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "AGR ACQUISITION CORPORATION", CHANGING ITS NAME FROM "AGR ACQUISITION CORPORATION" TO "AGRIPRO SEEDS, INC.", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF JUNE, A.D. 1994, AT 4:30 O'CLOCK P.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.

Edward J. Freel

SECRETARY OF STATE

2394087 8100

944121584

AUTHENTICATION: 7169071

DATE: 07-01-94

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
AGR ACQUISITION CORPORATION

AGR Acquisition Corporation, a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware,

DOES HEREBY CERTIFY:

FIRST: that the Board of Directors of said corporation, by the unanimous written consent of its members filed with the minutes of the Board, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Certificate of Incorporation of this corporation be amended by changing the Article thereof numbered "ARTICLE I" so that, as amended, said Article shall be and read as follows:

"ARTICLE I

Name

The name of the corporation (hereinafter called the 'Corporation') is Agripro Seeds, Inc."

SECOND: That in lieu of a meeting and vote of stockholders, the sole shareholder of the corporation has given unanimous written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of the General Corporation Law of the State of Delaware.

FOURTH: That the capital of said corporation shall not be reduced under or by reason of said amendment.

IN WITNESS WHEREOF, said AGR Acquisition Corporation has caused this certificate to be signed by Gary T. Hancock, its President, and attested by Ann Steelman, its Secretary, this 30th day of June, 1994.

AGR ACQUISITION CORPORATION

BY: Gary T. Hancock
Gary T. Hancock, President

ATTEST:

BY: Ann Steelman
Ann Steelman, Secretary

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-6 (10-16-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C (Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Coker's Pedigreed Seed Company

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
Hartsville, South Carolina 29550

FOR OFFICIAL USE ONLY

PVPO NUMBER
7700082

VARIETY NAME OR TEMPORARY DESIGNATION
DELTA QUEEN

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:
[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:
[2] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____
[1] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____
[2] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:
[ ][ ][ ] FIRST FLOWERING
[ ][ ][ ] LAST FLOWERING

4. MATURITY (50% Flowering):
[0][3] NO. OF DAYS *EARLIER* THAN .....
[ ][ ] NO. OF DAYS *LATER* THAN .....
[7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS
D 6/22/79
7 = Arthur 71

5. PLANT HEIGHT (From soil level to top of head):
[0][9][0] CM. HIGH
[ ][ ] CM. TALLER THAN .....
[0][3] CM. SHORTER THAN .....
[7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS
D 6/22/79
7 = Arthur 71

6. PLANT COLOR AT BOOTING (*See reverse*):
[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:
[1] 1 = YELLOW 2 = PURPLE

8. STEM:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT
[0][4] NO. OF NODES (*Originating from node above ground*)
[2] Waxy bloom: 1 = ABSENT 2 = PRESENT
[1] Internodes: 1 = HOLLOW 2 = SOLID
[ ][ ] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:
[2] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness: 1 = ABSENT 2 = PRESENT
D 7/23/79

10. LEAF:
[2] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*): _____
[ ] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
[1][2] MM. LEAF WIDTH (*First leaf below flag leaf*)
[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED
[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
[2][4] CM. LEAF LENGTH (*First leaf below flag leaf*):

FORM GR-470-6 (REVERSE)

11. HEAD:

[2] Density: 1 = LAX 2 = DENSE

[2] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____

[2] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[2] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): _____

[0][9] CM. LENGTH

[1][5] MM. WIDTH

12. GLUMES AT MATURITY:

[3] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[2] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[1] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

D 7/23/79

[1] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

B 7/23/79

15. JUVENILE PLANT GROWTH HABIT:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[ ] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

[0][6] MM. LENGTH

[0][3] MM. WIDTH

[2][4] GM. PER 100 SEEDS

17. SEED CREASE:

[2] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[2] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[2] STEM RUST (Races) _____

[2] LEAF RUST (Races) _____

[0] STRIPE RUST (Races) _____

[0] LOOSE SMUT

[2] POWDERY MILDEW

[0] BUNT

[2] OTHER (Specify) Soil-borne mosaic

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[ ] SAWFLY

[ ] APHID (Bydv.)

[ ] GREEN BUG

[ ] CEREAL LEAF BEETLE

[1] OTHER (Specify) _____

HESSIAN FLY RACES: [2] GP [ ] A [1] B [1] C [1] D [1] E [ ] F [ ] G

D 7/23/79

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Arthur 71	Seed size	Arthur 71
Leaf size	Arthur 71	Seed shape	Arthur 71
Leaf color	Arthur 71	Coleoptile elongation	Arthur 71
Leaf carriage	Arthur 71	Seedling pigmentation	Arthur 71

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

June 22, 1979